

CLAIMS

1. An aiming device for a locking nail comprising a connecting portion, connectable to an end of the nail and having an aiming arm with a first portion which extends approximately parallel to the nail when the nail is connected with the connecting portion, the first portion is provided with at least one transverse bore extending along an axis for receiving a guiding sleeve said first portion has at least one slot intersecting said bore, a biased lever having a first end attached to a first end of the slot and having a second end region, said lever having a sleeve contacting surface, said lever biased inwardly against sleeve, the slot and the lever being disposed such that the lever may be swiveled out of the slot in a plane which is generally perpendicular to the axis of the transverse bore and out of engagement with said sleeve.

2. The aiming device as set forth in claim 1 wherein the nail and the first portion are provided with two angled bores closely spaced together, each for receiving a guide sleeve, the first portion is provided with two parallel slots accommodating a lever, the sleeve contacting surface of each lever is provided with two adjacent opening or recesses and the openings or recesses of each lever are formed to contact only one of said two sleeves respectively.

3. The aiming device as set forth in claim 1 wherein the first end portion of the lever received is fixedly attached to the first end of the slot has a relatively small cross-section compared to a second end portion of the lever.

4. The aiming device as set forth in claim 3 wherein the end portion of the lever is fixed in the slot by gluing.

5. The aiming device as set forth in claim 1 wherein the first portion is movable on an aiming arm and capable of being fixed at a selected location thereon.

6. The aiming device as set forth in claim 5 wherein the first portion is provided with a connecting portion offset with an obtuse angle, and the aiming arm runs in an acute angle with respect to a longitudinal axis of an implanted nail such that the first portion extends approximately parallel to the nail axis.

7. The aiming device as set forth in claim 1 wherein the first portion and/or the levers are formed from carbon fiber reinforced plastic material.

8. The aiming device as set forth in claim 6 wherein the first portion is connected to a sleeve portion which is moveable in a non-rotatable manner on the aiming arm.

9. An aiming apparatus for locating an implant in a long bone, the implant having at least two transverse bores therethrough, the apparatus comprising:

an aiming arm connected to the implant, the arm having a first portion extending adjacent the long bone and having at least two bores alignable with the at least two bores in the implant;

a guide sleeve for insertion into each bore in the first portion of the aiming arm; and

a means for independently holding said sleeves in said bores, said means allowing the independent release of each of said sleeves from said bores.

10. The aiming apparatus as set forth in claim 9 wherein the means for holding the sleeves comprises a biased lever associated with each sleeve, the levers mounted on said

first portion, each lever biased into engagement with one of said sleeves.

11. The aiming apparatus as set forth in claim 9 wherein each sleeve has a biased lever engageable therewith, the biased lever having a recess for accommodating each sleeve with only a single recess having a surface contacting only one of said sleeves.

12. The aiming apparatus as set forth in claim 11 wherein the lever is made of a resiliently deflectable material and is mounted in a slot in said first portion, each lever having a first end fixed at a first end of said slot and having a handle at a second end for resiliently deflecting the lever about their fixed ends out of engagement with said sleeves.

13. An aiming apparatus for locating bores in a device implanted in a long bone comprising:

an aiming arm connected to the implanted device and having a first portion extending generally parallel to a longitudinal axis of the long bone, the first portion having two bores therethrough extending in a direction not parallel to the longitudinal axis;

a guide sleeve mounted in each of said bores; and

two resilient locking elements mounted on said first portion, each locking element engageable with only a single one of said sleeves.

14. The aiming apparatus as set forth in claim 13 wherein the nail and the first portion are provided with two angled bores closely spaced together, each for receiving a guide sleeve, the first portion is provided with two parallel slots, each for accommodating a locking element, a sleeve contacting surface of each locking element is provided with

two adjacent openings or recesses and the openings or recesses of each locking element are formed to contact only one of said two sleeves respectively.

15. The aiming apparatus as set forth in claim 14 wherein a first end of the locking element is fixedly attached to a first end of the slot, said first end of the locking element having a relatively small cross-section compared to a second end portion of the locking element.

16. The aiming apparatus as set forth in claim 15 wherein the first end portion of the locking element is fixed in the slot first end by gluing.

17. The aiming apparatus as set forth in claim 13 wherein the aiming arm is moveable on a connecting portion attached to the device and is capable of being fixed at a selected location thereon.

18. The aiming apparatus as set forth in claim 17 wherein the connecting portion is offset at an angle to a longitudinal axis of an implanted nail such that the aiming arm extends approximately parallel to the nail axis.

19. The aiming apparatus as set forth in claim 13 wherein the aiming arm is connected to a sleeve portion which is moveable in a non-rotatable manner on the connecting portion.

20. The aiming apparatus as set forth in claim 13 wherein the aiming arm and/or the locking elements are formed from carbon fiber reinforced plastic material.